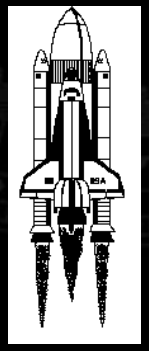
Designing, Understanding and Operating Complex Human/Machine Systems



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“My Program Crashed!”

- **In The Early Days of Computing, Human/Machine Interface Design Was Largely Academic**

“My Program (train, airplane, ship, . . .) Crashed!”

- **Today, Human-in-the-Loop, Computer-Based Systems Are Ubiquitous, and Important in Our Daily Lives**
  - **Air transport and ATC, metro transit, plant control, . . .**

Human/Machine Interfaces for Highly Complex, Automated Systems

- Many of These Computer-Based Systems Involve Time- and Safety-Critical Human/Machine Interaction
- Who's Designing the Interfaces??

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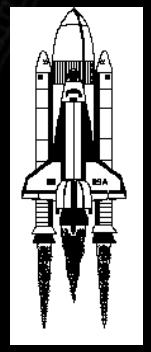
Problem

- **IT Industry and Computer Science Focus on Desktop, Handheld and Wireless Devices**
- **Many of Today's Computer-Based Systems are *Orders-of-Magnitude* More Complex, With Multiple *Levels of Automation***
- **Need: Interdisciplinary Design Teams**
  - **Computer Science, Engineering, Human Factors, Psychology, Cognitive Science, . . .**



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Panelists

- ***Deborah Bruce***, **Chief, Safety Studies and Statistical Analysis, NTSB, will highlight incidents and accidents related to problems with automation and the human/machine interface**
- ***Bill Buxton***, **Chief Scientist, Alias | Wavefront, will describe some fundamental principles for HMI design**
- ***Chris Miller***, **Chief Scientist, Smart Information Flow Technologies, will describe successful work on the *Rotorcraft Pilots' Associate* for the flight deck of the Apache helicopter**
- ***Steve Chien***, **Head, AI Group, JPL, will point to some open research questions regarding how humans might interact with remote, automated systems**